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U.S. v. AVX Original
Litigation Document

New Bedford Area Chamber of Commerce

May 22, 1985

Michael R. Deland, Regional Administrator
U. S. Envirnomental Protection Agency
J. F. Kennedy Federal Building
Boston, MA 02201

Dear Mr. Deland:

The New Bedford Area Chamber of Commerce will soon sponsor a series of public information forums on the issue of PCB's. We have drafted a "PCB White Paper" (copy enclosed) for use as an instrument to implement the forums.

We would appreciate it if you would review the PCB White Paper and provide us with your comments. We would like to have your comments prior to releasing the PCB White Paper to the press in mid June.

If you have any questions, please feel free to call me at 999-5231.

Sincerely,

James H. Mathes, Executive Vice President
New Bedford Area Chamber of Commerce

JHM/ms

Enclosure

PCB WHITE PAPER

May 1985

PCB WHITE PAPER

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INTRODUCTION

The New Bedford Area Chamber of Commerce is sponsoring a series of public information forums concerning the issue of PCBs.

PCBs are a national issue that have received significant media attention due to the many studies conducted to determine their possible health effects. Additional studies have been done in an effort to identify effective cleanup methods for sites containing PCBs.

These studies have resulted in significant differences of opinion among members of the scientific, technical and environmental communities. These differing opinions, based on research and studies, exist in addressing the questions:

* Are PCBs a health hazard?

* Is there reason for cleanup action at sites containing PCBs?

* Is there a cleanup method proven effective for sites containing PCBs?

* Is no action and awaiting further studies the best approach in handling sites containing PCBs?

Given the differing opinions about the PCB issue, the New Bedford Area Chamber of Commerce has prepared this PCB White Paper as an instrument to implement public information forums. In reading the PCB White Paper, you will learn of the differing opinions and the basis on which they have been formed.

This PCB White Paper focuses on the PCB issue in the New Bedford area, particularly with regard to the upper Acushnet River estuary, north of the Coggeshall Street Bridge, as this has been identified as a "hot spot area" and thereby has received greater study.

The New Bedford Area Chamber of Commerce encourages the entire community to participate in the public information forums as we strive to achieve increased awareness, knowledge and understanding of an issue important to each of us.

It is important to note that the New Bedford Area Chamber of Commerce has taken no position on the PCB issue and shall refrain from doing so throughout the public information process.

PCBs

PCBs is an abbrevlation for polychlorinated biphenyls, which is a family of man-made chemical compounds composed of carbon, hydrogen and chlorine. There are some 209 different chemical compounds that can be called PCBs, ranging in characteristics from light, oily fluids to heavier, greasy or waxy substances.

PCBs are very stable chemicals, which means they do not break down easily when they are exposed to water, heat or electricity. PCBs were first manufactured in 1929, and since then have been used in many ways by many different industries.

For example, the electrical industry found that PCBs made excellent insulators because electricity does not easily pass through them. For this reason, PCBs have been used extensively in electrical equipment such as capacitors and transformers. Because PCBs are very resistant to fire, they have also been used as flame retardants in a wide variety of products. Because PCBs do not break down easily, they have been used in varnishes, waxes, sealants, glues, hydraulic fluids, lubricants, adhesives and pesticides. PCBs have also been used in anti-fouling paint for boats and newspaper print ink.

Although PCBs are still manufactured in Europe, their commercial production in the United States was discontinued in 1978.

PCBs AND HEALTH

A number of different factors led to an increased interest in the possibility that PCBs may threaten our health and environment.

In 1966, a Swedish study indicated that the rate of biodegration (natural breakdown) was very slow for some PCB compounds. Because PCBs decompose very slowly, these chemicals accumulate in the food chain and in body fat. While this durability does not make PCBs dangerous per se, it was one of the first causes for concern.

In 1968, a widespread human poisoning episode involving PCBs occurred in Japan. On the island of Kyushu, Japan, 1,300 people became ill from consuming rice oil contaminated with heat transfer fluid containing 2,000 to 3,000 ppm (parts per million) of a Japanese brand of PCB. These people developed skin disorders which progressed to nausea, fatigue, and swelling of the limbs. Some developed liver disorders. During the 11 years following exposure, 51 people died, with the cause of death known in 31 cases. Eleven of the deaths (35.4%) were due to cancer. In a normal control population, only 21.1% of deaths would be expected from cancer.

In the years following the Japanese incident, it became increasingly evident that PCBs were not the cause of the poisoning. It was shown that the heat transfer fluid which contaminated the rice oil contained only 50 percent PCBs. Due to a combination of events, the remaining one-half of the original fluid was converted into other materials, including dibenzofurans, which have been shown to be much more toxic than PCBs. Most researchers who have studied the Japanese incident feel it has little relevance to potential health effects from PCB exposure in the United States. By the time the role of dibenzofurans in the Japanese incident became known, however, the public in the United States had already begun voicing its concern about exposure to PCBs.

Animal experiments involving PCBs have raised questions about possible health hazards in humans. Although PCBs have never been shown to cause life-threatening effects in animals, some studies on rats have indicated a link between PCBs and liver cancer. Other studies have found that applying PCBs to the skin of rabbits and monkeys have resulted in skin lesions.

To help make clear the evidence both for and against the idea that PCBs pose a health risk to humans, this paper will examine the evidence on both sides of the issue.

One study seemed to indicate a link between PCBs and increased liver cancer in animals. This study was based upon a series of experiments done at the Centers for Disease Control (CDC) in Atlanta. In the CDC studies, rats were fed 100 parts per million of PCBs in their diet for 21 months and were found to have a higher-than-expected incidence of liver cancer. The results from this study have been questioned as later studies have failed to confirm an increased incidence of liver cancer in mice and rats exposed to PCBs.

Another study, done on rhesus monkeys, suggested that dietary exposure to relatively high levels of PCBs led to severe reproductive dysfunction.

Based on its studies of the scientific literature, the Environmental Protection Agency (EPA) has concluded that PCBs are potentially hazardous to humans.

On the other hand, other animal studies, along with a number of studies on workers exposed to PCBs, conclude that there is insufficient evidence that PCBs pose any health risk to humans.

Perhaps the most comprehensive review of all experimental data based on animal studies was released in 1982 by Drill, Firess, Hays, Loomis and Shaffer, Inc., a consulting firm specializing in toxicology. They concluded "animal studies do not provide convincing evidence that PCBs induce liver cancer". Of the major studies on rats, one indicates that PCBs induce cancer, and two do not. They also noted that experiments exposing dogs to PCBs did not induce liver cancer and that exposure to rats did not induce bladder cancer, gastrointestinal cancer, or cancer of the thyroid, pituitary, adrenal gland, uterus, lung or other organs.

In addition to these animal studies, there have been several studies involving humans with long-term occupational exposure to PCBs. The most extensive occupational studies of humans with long-term exposure to PCBs involve electrical equipment workers. Three separate studies of electrical workers done by the National Institute for Occupational Safety and Health (NIOSH) found that, although workers blood PCB levels were much higher than the national average, the incidence for all cancers among the same workers was slightly lower than that for the United States population in general.

Two studies of General Electric workers (one in 1977; another in 1979) also found no evidence of ill health among workers.

CDC STUDIES HEALTH IN NEW BEDFORD

Given the discrepancies in previous studies, it is understandable that the EPA, the CDC and the Massachusetts Department of Public Health are conducting a comprehensive study on human exposure to PCBs in New Bedford to determine if there are links between PCBs and human health in New Bedford. The $980,000 health study in Greater New Bedford is expected to begin soon and take approximately three years. This health study is the first community-wide survey on PCB exposure in the United States.

BACKGROUND

All of the PCBs, both consumed and/or found in the New Bedford area, appear to have been manufactured by the Monsanto Chemical Company, the sole U.S. manufacturer of PCBs. Four different Monsanto formulations have been identified in this area; they are Aroclor 1260, Aroclor 1254, Aroclor 1242 and Aroclor 1016. The latter three were the most frequently used, but they differ considerably in their ability to be broken down when exposed to the environment. Generally, PCB molecules having 5 or more chlorine atoms ("pentas") are considered to be very stable. Molecules with less than 5 chlorine atoms are considered to be fairly biodegradable. The two formulations that were primarily consumed in New Bedford differ greatly in their percentage of pentas as shown below:

Aroclor 1254 - 70%

Aroclor 1016 - 0.1%

In the early 1970's, as information about suspected health effects became public, Monsanto restricted sales of Aroclor to sealed electrical applications only. In 1971, Aroclor 1016 was introduced by 1972, over 98 percent of the PCBs used at the two electrical consumers of PCBs in New Bedford, Aerovox Corporation and Cornell-Dubilier, were Aroclor 1016, the most biodegradable of the various PCB fluids.

The current debate on PCBs in New Bedford began with the Toxic Substances Control Act (TSCA), passed in 1976, which banned "the manufacture, processing, distribution and use of PCBs" in all products that were not totally enclosed. TSCA provided that no new equipment may contain PCBs, and transformers which might threaten food supplies must be removed by October, 1985. Capacitors that are not exposed (those used by industry in underground conduits, for example) may be used until they are worn out. The act also requires a regular inspection and maintenance program for certain PCB-containing equipment.

In August, 1983, EPA commissioned NUS Corporation to develop a "fast-track" remedial action feasibility study for the upper Acushnet River estuary. In August-September, 1984, NUS Corporation issued a draft remedial action feasibility study to the EPA. The study outlined a number of remedial options, including a "no-action" alternative. This draft study drew a number of responses during the public comment period which ended in January, 1985. In March, 1985, EPA stated that it has reassessed its position regarding the fast-track remedial action feasibility study due to responses in the public information process and advised that it plans further study before taking any action.

OPTIONS

This section will present information on each of the "fast-track" remedial action alternatives suggested by the EPA for the upper Acushnet River estuary only in the draft Feasibility Study prepared by NUS.

1. Hydraulic Control and Sediment Capping (estimated cost: $24.6 million)

This alternative involves constructing a lined channel along the western shoreline of the upper estuary and isolating and capping the sediments.

2. Dredging with Disposal in an Unlined, In-Harbor Containment Site (estimated cost: $27.8 million)

Sediments will be dredged from the upper Acushnet River estuary and placed in an In-Harbor containment site. The walls of the containment area will be lined, but the bottom will be unlined and the sediment already inside the disposal area will be left there. Water in the site will be removed and treated. The containment site will be capped.

3. Dredging with disposal in a Lined, In-Harbor Containment Site (estimated cost: $79.5 million)

This alternative is similar to the one just described, except that an impermeable membrane liner will be placed underneath the containment site before sediment containing PCBs is placed there.

4. Dredging with Disposal in an Upland Containment Site (estimated cost: $44 million)

The entire upper estuary would be dredged, and the sediment disposed of on land in an upland containment site. After all the sediment was placed in the containment site, the containment site would be capped.

5. No-Action (estimated cost: NONE)

Under this alternative, no action is taken to remove the sediments; it is left in the estuary and subject to natural biodegradation and sediment capping.

6. Dredging with Disposal into In-Harbor Subsurface Cells (estimated cost: $29.5 million)

Sediments from the upper estuary will be dredged to a depth of three feet and placed in a temporary containment site constructed on the western shoreline. Further sediments would be dredged and placed in another temporary containment site constructed on the eastern shoreline. The original sediments will be placed back in the estuary, and the remaining sediments placed on top of the original sediments.

7. Incineration of Sediments (estimated cost: greater than $70 million)

Over a period of 6 years, sediments would be dredged from the upper estuary, dewatered and incinerated in a kiln constructed for the purpose. Because of the presence of heavy metals in the sediments and the prohibitive cost, this option is not favored by EPA.

8. Disposal at an existing out-of-state landfill (estimated cost: greater than $100 million)

The upper estuary would be dredged, the sediments temporarily stored, dewatered, and hauled to an out-of-state disposal site.

As mentioned previously, the draft Feasibility Study prepared by NUS drew extensive comment from industry, local municipalities, federal and state agencies, the United States Army Corps of Engineers, environmental groups, public officials and individual citizens. These comments were varied, with different parties opting for various alternatives and criticizing other options and resulted in the EPA planning further study before taking any action.

The most prevalent criticism of the study, a criticism leveled from many corners including the United States Army Corps of Engineers, was that the fast-track approach adopted by the EPA lacked the technological data necessary to make an informed judgment among the remedial alternatives presented. It was pointed out by various commentators that the document provided no technical basis for reaching conclusions on even the most basic issues: the routes of transport of — and exposure to — PCBs, the populations affected by PCBs, and the health effects, if any, on the New Bedford populace. Moreover, these issues are the subject of scientific studies presently scheduled to be performed in the area.

Some comments noted that the study itself contained evidence establishing a 70 percent decline in ambient air PCB levels downwind of the estuary over the period from 1978 to 1982, levels that fell within the acceptable range set by municipalities such as Philadelphia and New York. Moreover, there is evidence that PCBs in the estuary are being buried by natural sedimentation and that body burdens of PCBs in lobsters in the outer Harbor are declining over time.

Certain commentators, including public officials, pointed out the uncertainties of dredging and the resulting disposal of PCBs now being naturally capped as well as the risk of facilitating, rather than remediating, migration of, and exposure to, PCBs either through the water or the air. Moreover, assuming that PCBs presented a hazard, it was thought that the transport of those PCBs to another site not only would disturb the existing sediments but also may create another waste site that may present the same problems in the future.

Other comments observed that the cost estimates for the proposed alternatives were unrealistically low, and that the imposition of these costs, either upon local industry or local municipalities, would have a negative impact on the local economy. Also, since the medical evidence from studies of workers directly exposed to PCBs provided no evidence of increased health risk from such exposure, it made sense to await the outcome of the forthcoming study to be performed under the auspices of the CDC to determine the public health effects, if any, of PCBs on the populace of New Bedford before determining which, if any, of the alternatives should be adopted. Finally, some commentators noted that the water quality of the upper estuary had been deteriorating, and the estuary closed to commercial shellfishing, for many years prior to the first use of PCBs in the area because of other pollutants.

SUMMARY

At present, there are two choices facing the residents of Greater New Bedford:

1. Take immediate action.

Taking immediate action means dredging the harbor, removing sediment containing PCBs, and either putting it somewhere else — in a lined or unlined site, on land, under a channel, or trying to burn it. Proponents of immediate action argue that PCBs are a serious health problem and need to be contained.

Should PCBs prove hazardous, there are several risks involved in this choice. One is that by dredging the PCBs, you will expose them to water, making it possible for them to migrate, either out to sea or up into the air, as ambient particles. Because there is a foot of sediment covering them, some scientists argue that the PCBs are much safer left as they are and are not a serious health risk.

2. Take no action at this time.

Proponents of this choice argue that data indicating PCBs pose a threat to human health is inconclusive at best. Until more is known about PCBs, and, in particular, their impact, if any, on the New Bedford populace, they say, nothing should be done except to study the cleanup options and do further research on PCBs and their impact on human health.

The obvious risk in taking no action is that, should PCBs prove hazardous, leaving the PCBs where they are may be harmful to the health of people in the area.